"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

UDC 536.46

BERMAN, V. S., NOVIKOV, S. S., RYAZANTSEV, Yu. S., Moscow

"Calculation of One Unstable Combustion Mode of a Condensed System"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 1, 1972, pp 23-30.

Abstract: A one-dimensional process of combustion of a powder specimen on a metallic substrate with constant pressure is studied on the basis of a two-phase model of thermal decomposition of the condensed system. The results of numerical calculations performed by computer are presented. These results are compared qualitatively with experimental results. The results of earlier works are summarized, in which a combustion mode was observed including a stage of ignition, a stage of stable propagation and a stage of cessation of combustion as the combustion front reached the plate, which must be related to heat flow out of the combustion zone into the plate, which has much greater heat conductivity than the powder. It was established that after cessation of combustion, a thin layer of unburned powder remains on the plate, the thickness of which depends on the pressure and initial temperature, and experimental data were produced on the thickness of the unburned residue as a function of pressure and initial temperature.

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USSR

UDC: 621.396.967.029.5.001.2

VLASOV, V. I. and BERMAN, Ya. I.

Proyektirovaniye Vysokochastotnykh Ustroystv Radiolokatsionnykh Stantsiy (Design of High-Frequency Radar Station Devices) 1972, Leningrad, Izd-vo "Sudostroyeniye," 368 pp, p 2

Translation: This book offers a method for computing and constructing antenna-feeder strips for shipboard radar stations (SRS). The theme is important because the technical and tactical characteristics of SRS as a whole depend on these strips.

The authors have considered the theoretical bases of the operation of all the high-frequency SRS devices (antennas, shields, waveguide elements), given the derivations of design formulas, described a method of engineering computation, examined methods of measurement and control of the parameters of these devices, and listed recommendations for their placement and operation on board ship.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

VLASOV, V. I. and MERKAN, Ya. I., Proyektirovaniye Vysokochastotnykh Ustroystv Radiolokatsionnykh Stantsiy, 1972, Izd-vo "Sudostroyeniye," 368 pp, p 2

Especial attention is given to the prospects of antenna-waveguide devices -- phased antenna gratings permitting broad control of electrical parameters -- which make them especially valuable for solving some navigating problems.

The book is aimed at engineer-technician personnel engaged in the design of high-frequency shipboard radar strips; it may be useful as a textbook for the advanced and middle educational institutions.

It contains 26 tables, 274 illustrations, and a bibliography of 68 titles.

Reviewers: Candidate of Technical Sciences K. K. Lyapin, Engineer B. N. Antashov, and Engineer S. P. Shamolin.

Scientific Editor: Candidate of Technical Sciences M. L. Varshavchik.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

UDC: 621.396.967.029.5.001.2

VLASOV, V. I. and BERMAN, Ya. I.

Proyektirovaniye Vysokochastotnykh Ustroystv Radiolokatsionnykh Stantsiy (Design of High-Frequency Radar Station Devices) 1972, Leningrad, Izd-vo "Sudostroyeniye," 368 pp, pp 367-368

Translation:

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

VLASOV, V. I. and BERMAN, Ya. I., Proyektirovaniye Vysokochastotnykh Ustroystv Radiolokatsionnykh Stantsiy, 1972, Izd-vo "Sudostroyeniye," 368 pp, pp 367-368

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

VIASOV, V. I. and ERMAN, Ya. I., Proyektirovaniye Vysokochastotnykh Ustroystv Radiolokatsionnykh Stantsiy, 1972, Izd-vo "Sudostroyeniye," 368 pp, pp 367-368

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VLASOV, V. I. and BERMAN, Ya. I., Proyektirovaniye Vysokochastotnykh Ustroystv Radiolokatsionnykh Stantsiy, 1972, Izd-vo "Sudostroyeniye," 368 pp, pp 367-368

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

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VLASOV, V. I. and [illegible], Ya. I., Proyektirovaniye Vysokochastotnykh Ustroystv Radiolokatsionnykh Stantsiy, 1972, Izd-vo "Sudostroyeniye," 368 pp, pp 367-368

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

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VLASOV, V. I. and ZERMAN, Ya. I., Proyektirovaniye Vysokochastotnykh Ustroystv Radiolokatsionnykh Stantsiy, 1972, Izd-vo "Sudostroyeniye," 368 pp, pp 367-368

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VLASOV, V. I. and ERMAN, Ya. I., Proyektirovaniye Vysokochastotnykh Ustroystv Radiolokatsionnykh Stantsiy, 1972, Izd-vo "Sudostroyeniye," 368 pp, pp 367-368

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USSR UDC: 621.396.6:629.12

BERMAN, Ya. I., VLASOV, V. I., KOGAN, N. L. et al.

"Shipboard Radar Installations and Their Use. (Handbook). Vol. 2"

Sudovyye radiolokatsionnyye stantsii i ikh primeneniye. (Spravochnoye Rukovodstvo). T. 2 (cf. English above), Leningrad, "Sudostroyeniye", 1970, 567 pp, ill. 1 r. 90 k. (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G65 K)

Translation: The second volume of this three-volume handbook deals with principles of design and methods of computation of the basic elements of radar installations; transmitting, receiving, waveguide-antenna and display units are considered. Materials are given on automatic tracking of targets and on taking their coordinates on a circular scanning field. The handbook is designed for an extensive range of specialists involved in radar technology. It may also be used as a classroom reference by teachers and students in the appropriate areas.

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1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MOLECULAR WEIGHT AND MOLECULAR DIMENSIONS OF POLYDIOXOLANE -U-

AUTHOR-(04)-BERMAN, YE.L., PRAVIKOVA, N.A., LYUDVIG, YE.B., DAVTYAN, A.G.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 580-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYTIC POLYMERIZATION, ORGANIC OXYGEN COMPOUND, MOLECULAR WEIGHT, INTRINSIC VISCOSITY, CYCLIC GROUP, ORGANOANTIMONY COMPOUND, HETEROCYCLIC OXYGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1205 STEP NO--UR/0459/70/012/003/0580/0584

CIRC ACCESSION NO--AP0116670
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2/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116670

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOL. WT. (M SUBW), POLYDISPERSITY, AND MOL. DIMENSIONS OF POLYDIOXOLANE (I) (PREPD. BY POLYMN. OF 1,3,DIOXOLANE IN ETCL IN THE PRESENCE OF ET SUB3 OSBCL SUB6) WERE STUDIED IN PHCL. THE INTRINSIC VISCOSITY (ETA) (DL.-G, PHCL, 25DEGREESC) EQUALS 2.0 TIMES 10 PRIME NEGATIVE3 M SUBW PRIMEO.5, WITHIN THE RANGE OF 0.6 IS SMALLER THAN (ETA) IS SMALLER THAN 1.6. THE POLYDISPERSITY AND THE QUADRATIC RADII OF INERTIA (R SUBZ PRIME2) PRIMEO.5 WERE CALCD. I HAVING (ETA) SMALLER THAN 0.6 EXHIBITED HIGH POLYDISPERSITY. CYCLIC MOLS. WERE SOMETIMES FORMED IN I HAVING (ETA) SMALLER THAN 0.6. FACILITY: FIZ. KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

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USSR

UDC: 51:621.391

BERMANT, N. A., SEMENOV, L. K., SULITSKIY, V. N.

"Mathematical Models and Educational Planning"

Moscow, Matematicheskiye modeli i planirovaniye obrazovaniya (cf. English above), "Nauka", 1972, 112 pp, ill. 34 k. (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V598 K)

[No abstract]

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USSR

UDC 538.4

BERMINOV, A. I., BUM, D. A., KOVALEV, L. K., YUDAS, V. I., Moscow

"Two-Dimensional Magnetic Fields in Magnetohydrodynamic Channels with Steel Walls with Finite Magnetic Reynolds Numbers"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 5, 1971, pp 3-11.

ABSTRACT: A study is made of the planar problems of the distribution of a two-dimensional magnetic field in magnetohydrodynamic channels with ferromagnetic walls with real Reynolds magnetic numbers and fixed hydrodynamic flow. A complex function describing the field from a unique point is used to construct an integral representation for the full magnetic induction, allowing any approximation to strict solution of the problem to be produced by digital computer. The influence function can be defined for various channels using mirror reflections and conformal mappings. The method is illustrated by numerical calculation of the distribution of the magnetic field as a conducting fluid flows along a flat, ferromagnetic wall and a fluid flows in the band between ferromagnetic walls. The influence of the external circuit and heterogeneous transverse velocity profile on distribution of the magnetic field is calculated.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--A COMPARATIVE STUDY OF HUMAN ALLERGIC ANTIBODIES IN THE PRAUSNITZ KUESTNER REACTION AND IN PASSIVE SENSITIZATION OF ISOLATED SMOOTH MUSCLE

AUTHOR--BERMONT, I., GOSHCHIN, I.S., POLNER, A.A., PORYADIN, G.V.

COUNTRY OF INFO--USSR

SOURCE--PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA, 1970, VOL 14, NR 1, PP 49-53

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ALLERGIC DISEASE, ANTIBODY, MEDICAL PATIENT, SMALL INTESTINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0602 STEP NO--UR/0396/70/014/001/0049/0053

CIRC ACCESSION NO--APO052064

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Acc. Nr: AP0052064 Ref. Code: UR0396

PRIMARY SOURCE: Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, 1970, Vol 14, Nr 1, pp 49-53

A COMPARATIVE STUDY OF HUMAN ALLERGIC ANTIBODIES IN THE PRAUSNITZ-KUESTNER REACTION AND IN PASSIVE SENSITIZATION OF ISOLATED SMOOTH MUSCLE ORGANS IN MAN

I. . Bermont, I. S. Goshchin, A. A. Polner, G. V. Poryadin

A comparative study of allergic antibodies of untreated patients sensitive to ambrosia was carried out by means of Prausnitz-Kustner reaction and by passive sensitization of isolated sections of the ileum. In the fractions of reaginic sera obtained by gel-filtration on Sephadex G-200 the skin-sensitizing activity and sensitizing activity to the small intestine were revealed in the same zone — the ascending part of the second peak which contained γG-globulin and traces of γA-globulin. Exhaustion of both γA- and γG-globulin in reaginic sera reduced their skin-sensitizing activity and sensitizing activity to the small intestine. Heating of intestinal sections at 45° C for 15 minutes eliminated the possibility of subsequent sensitization of the intestine. Preliminary heating of isolated human skin at 60° C for 30 minutes depressed the fixation of skin-sensitizing antibodies on it.

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USSR UDC 669.295.046.78

VELIKORODNYY, I. G., BEREZHNOY, N. N., BUGAYENKO, V. A., BERNADO, V. F., VOSKERICHYAN, A. KH.

"Study of the Magnetic Properties of the Processof Slag Pelletizing"

Sb. nauch. tr. N.-i. i proyekt. in-t po obogashch. i aglomer. rud chern. met. (Collected Scientific Works of the Scientific Research and Planning Design Institute with Respect to Beneficiation and Sintering of Ferrous Metal Ores), 1971, vyp. 15, pp 54-56 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4G210)

Translation: The laboratory studies at the Mekhanobrchermet Institute with respect to pelletizing Ti slag and Fe and Ti concentrates established the possibility of obtaining pellets of satisfactory strength. One illustration and 1 table.

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1/2 037 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--CLINICO ROENTGENOLOGICAL CHARACTERISTICS, CLASSIFICATION AND TREATMENT OF CHILDREN SUFFERING FROM MANDIBULAR OSTEOMYELITIS -U-

AUTHOR-(02)-BERNADSKIY, YU.I., LOGANOVSKAYA, YE.N.

COUNTRY OF INFO--USSR

B

SOURCE--STOMATOLOGIYA, 1970, VOL 49, NR 3, PP 69-71

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PEDIATRICS, BONE DISEASE, JAW, ETIOLOGY, RADIOGRAPHY, TOOTH, DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0068 STEP NO--UR/0511/70/049/003/0069/0071

CIRC ACCESSION NO--AP0120768

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

2/2 037 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120768

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUMMARY. ON THE BASIS OF ANALYSIS OF 385 CHILDREN WITH MANDIBULAR OSTEOMYELITIS (311, WITH ACUTE AND 74, WITH CHRONIC) THE AUTHORS PROPOSE A CLINICO ROENTGENOLOGICAL CLASSIFICATION OF THIS DISEASE. THE CLINICAL PICTURE WAS STUDIED WITH DUE REGARD OF THE CHILD'S AGE. THE CLASSIFICATION INCLUDES THE ETIOLOGY OF THE DISEASE, SEVERITY OF ACUTE AND CHRONIC PROCESSES (MILE, MODERATE AND SEVERE) AND ITS LOCALIZATION IN THE MANDIBLE. TO MILD FORMS OF CHRONIC OSTEOMYELITIS THE AUTHORS REFER THE FOLLOWING: INVOLVEMENT OF THE ALVEOLAR PROCESS, BODY OF THE JAW AND SECONDARY OSTEOMYELITIS; TO SEVERE, AFFECTION OF ONE HALF OF THE MANDIBLE AND THE WHOLE BRANCH; TO MODERATE OSTEOMYELITIS, AFFECTION OF THE ANGLE, CORONARY PROCESS AND NEST LIKE INVOLVEMENT OF THE BRANCH. FRONTAL PERMANENT TEETH WERE SUCCESSFULLY PRESERVED DURING THE TREATMENT; IN DIFFUSE FORMS OF CHRONIC OSTEOMYELITIS THE AUTHORS RESERTED TO SEQUESTRATION WITHOUT SCRAPING OF THE SEQUESTRAL CAVITY AND WITH PRESERVATION OF LIVE (UNCHANGED IN COLOR) DENTAL RUDIMENTS. CONSERVATIVE METHODS WERE USED ONLY IN THE TREATMENT OF RESTRICTED OSTEOMYELITIS RUNNING A COURSE WITHOUT THE FORMATION OF NOTICABLE (ON ROENTGENOGRAMS) SEQUESTRAE. FACILITY: KAFEDRA KHIRURGICHESKOY STOMATOLOGII KIEVSKOGO MEDITSINSKOGO INSTITUTA.

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USSR

BERNASOVS'KA, E. P., Kiev Scientific Research Institute of Epidemiology, Microbiology, and Parasitology, Kiev

"Results of an Immunoadsorption Study of Leptospira Strains Isolated in the Ukraine"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 756-757

Abstract: Strains of Leptospira isolated from animals and a human in the Ukraine in 1962-68 at natural foci of leptospirosis were subjected to study. They belonged to the serum groups australis, bataviae, and pomona. Immunoadsorption analysis indicated that strains of the serum types mozdok, pomona, bataviae, and erinacei europaei belonging to these serum groups circulated in the natural foci. The strain isolated from the human was of the serum type pomona.

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USSR

ZAKHARENKO, N. I., and BERNASOVS'KA, E. P., Kiev Scientific Research Institute of Epidemiology, Microbiology, and Parasitology, Kiev

"The Nitrogenous Base Composition of DNA of Leptospira Strains Belonging to Different Serum Groups"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 753-754

Abstract: The DNA nucleotide composition was determined of the following strains of Leptospira: two pathogenic strains (pomona and bataviae), two saprophytic strains (standard strain DSh and strain Voda isolated from the water of a pond), and two strains (kazachstanica and semaranga) which require further systematization. The nucleotide composition of the DNA isolated by the phenol method was determined by ascending paper chromatography. The quantitative determination of nucleotides was carried out spectrophotometrically. The content of guanine (G), adenine (A), cytosine (C), and thymine (T), the DNA specificity coefficient (G+C)/(A+T), the (G+T)/(A+C) ratio, and the purine/pyrimidine base ratio were determined. All Leptospira strains were of a pronounced AT type. (G+C)/(A+T) was 0.6, 0.6, 0.51, 0.54, 0.61, and 0.57 for BSh, Voda, pomona, bataviae, kazachstanica, and semaranga, respectively. Determinations were also carried out of DNA of serological

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ZAKHARENKO, N. I., and BERNASOVS'KA, E. P., Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 753-754

variants of the semaranga and pomona strains obtained by prolonged passaging through media that contained homologous immune serum. (G+C)/(A+T) increased to 0.72 and 0.63 for the semaranga and pomona variant, respectively, because of replacement of AT by GC pairs.

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USSR UDC 576.856.72

BERNASOVS'KA, E. P., and MATSYUK, V. M., Kiev Scientific Research Institute of Epidemiology, Microbiology, and Parasitology and Institute of Microbiology and Virology, Academy of Sciences Ukr SSR

"Isolation of Polysaccharide-Containing Fractions of Leptospira by the Method of Fuller"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 4, Jul/Aug 71, pp 454-459

Abstract: By applying the formamide method of A. Fuller (Brit. J. Exper. Path., 19, 2, 130-139, 1938), serologically active polysaccharide-containing fractions were isolated from Leptospira of the saprophytic strain BSh (L. biflexa) and a pathogenic strain of L. batavia. The fractions isolated were highly active in the passive hemagglutination reaction and the complement fixation reaction. They reacted with specific rabbit antiserum in the ring precipitation reaction and the reaction of precipitation in agar gel. Reducing substances in the amount of 30-39% were present in the polysaccharide-containing fractions. These fractions contained galactose, arabinose, xylose, mannose, ribose, rhamnose, and an unidentified sugar.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR UDC 632.954:543.544

BOBROVA, V. I., and BERNATSKAYA, L. S., All Union Scientific Research Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastic Masses

"A Method for the Determination of Hexylur in Water, Soil and in Products Derived from Plants"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 9 (119), 1973, pp 58-59

Abstract: A thin layer chromatographic method has been developed for the analysis of hexylur -- an analogue of lenacyl -- contained in water soil and plant products. The analytical sample is subjected to photochemical decomposition, followed by chlorination and observation of chloroderivatives formed with orthotolidine directly on the plates. In case of water the sensitivity of this method is 0.025 mg/l, for soil and plant products it is 0.050-0.1 mg/l. Average R_f value out of 12 determinations is 0.52 $\pm$ 0.05.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR UDC 632.95

[redacted], PIS'MENNAYA, M. V.

"Analysis of Microamounts of Some Derivatives of Phthalimide and Urea by Reaction with o-Tolidine After Thin-Layer Chromatography"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Feeds and Environment), Tallin, 1971, pp 131-132 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N506)

Translation: In analyzing herbane, it is extracted from water with $CHCl_3$, from soil and the products of plant origin with hexane, and it is analyzed, chromatographically on a plate with silica gel KSK in the $CHCl_3$ acetone system (8:1). It is irradiated for 20-30 minutes with ultraviolet light and placed in a chamber with Cl_2 vapor where it is processed by an o-tolidine solution. Thin-layer chromatography of phthalophos, phthalane, captane and other derivatives of phthalimide is carried out in the C_6H_6-acetone system (9:1); chromatographic analysis of derivatives of urea is carried out in the MeOH + $CHCl_3$ system (5:1).

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USSR

UDC 632.951:581.135

BORODULINA, F. Z., BERNATSKAYA, M. L., Moscow State University

"Effect of High Concentrations of Rogor on Apple-tree Water Regime"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 1, Jan 70, pp 22-24

Abstract: In 1966 N. I. YEFREMOVA, a staff scientist of the All-Union Scientific Research Institute of Agricultural Machinery, studied the low-volume spraying of 35-year-old apple trees with Sevin and Rogor at the Orchard of the Crimean Fruit Experimental Station. It was found that low-volume spraying with Rogor in a concentration of 0.6 percent a. i. (active ingredient) with a liquid consumption of 500 l/ha affects the water regime of the apple trees. Treatment of the trees is followed by reduced water mobility, resulting in weakened transpiration and increased suction force and water retentiveness. Necrotic spots appeared on the leaves. Another experiment was carried out in 1967 on 15-year-old trees at Lenin Hills in Moscow. The trees were sprayed with a

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USSR

BORODULINA, F. Z., BERNATSKAYA, M. L., Khimiya v Sel'skom Khozyaystve, Vol 8, No 1, Jan 70, pp 22-24

Rogor emulsion containing 0.3 and 0.75 percent a. i. Although the conditions of treatment were different in the 1966 and 1967 experiments (a ventilator device was used for spraying in 1966, a spray gun in 1967), the results were similar in many respects.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

1/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--EFFECT OF HIGH CONCENTRATIONS OF ROGOR ON THE WATER SYSTEM OF APPLE TREES -U-

AUTHOR-(02)-BORODULINA, F.Z., BERNATSKAYA, M.L.

B

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(1), 22-4

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, AGRICULTURE

TOPIC TAGS--INSECTICIDE, AGRICULTURE CROP, PLANT CHEMISTRY/(U)ROGOR INSECTICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0720 STEP NO--UR/0394/70/008/001/0022/0024

CIRC ACCESSION NO--AP0108926

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

2/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70
CIRC ACCESSION NO--AP0108926
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SOLN. OF 0.6PERCENT ROGOR IN WATER SPRAYED ON APPLE TREES AT 500 L-HA REDUCED THE MOBILITY OF WATER IN THE LEAVES AND LESSENED THEIR TRANSPIRATION. AFTER SPRAYING, THE LEAVES APPEARED BURNED.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CHANGE IN THE SIZE DISTRIBUTION OF CARBON BLACK PARTICLES DURING THEIR COMPLETE COMBUSTION -U-

AUTHOR-(03)-BERNER, G.YA., SOROKIN, A.S., KRIVANDIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(3), 167-70

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CARBON BLACK, COMBUSTION, ELECTRON MICROSCOPY, PARTICLE SIZE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1544 STEP NO--UR/0148/70/013/003/0167/0170

CIRC ACCESSION NO--AP0125170

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

2/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0125170
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE C BLACK WAS COMBUSTED UNDER VARIOUS TEMP. AND TIME CONDITIONS IN AN ELEC. FURNACE (20 MM DIAM., 0.25-0.50 M LONG). THE INITIAL CONCN. OF THE C BLACK WAS 8.3 G-M PRIME3 OF THE GASEOUS PHASE, THE CONTENT OF FREE O 1-4PERCENT. THE NO. AND SIZE OF THE C BLACK PARTICLES WERE FOUND BY PHOTOGRAPHING WITH ELECTRON MICROSCOPE AND FURTHER ENLARGING OF THE NEGATIVES (THE TOTAL ENLARGEMENT TIMES 6000). INCREASING THE TEMP. AND COMBUSTION TIME, SHIFTS THE MAX. OF THE DISTRIBUTION CURVES TO A SMALLER PARTICLE SIZE AND AT THE SAME TIME THE CONTENT OF THE MOST FREQUENT PARTICLES, THE RATIO OF THE FINE AND COARSE GRAINED PARTICLES, AND THE AV. PARTICLE DIAM. ARE CHANGED. THE AV. PARTICLE DIAM. IS NOT RECOMMENDED AS A SUFFICIENT CHARACTERISTIC OF THE COMBUSTION PROCESS. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

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USSR UDC 546.65'173'185

ROZANOV, I. A., BERNIKOV, V. R., TANANAYEV, I. V., and CHEL'TSOV, P. A., Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy of Sciences USSR Moscow

"Trimetaphosphimates of Multivalent Metals. I. Investigation of the Interaction in the System $LaCl_3$-$Na_3(PO_2NH)_3$-H_2O"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 4, Dec 71, pp 872-874

Abstract: Sodium trimetaphosphimate -- $Na_3(PO_2NH)_3.4H_2O$ -- was obtained by hydrolysis of the phosphonitrile chloride trimer -- $(PNCl_2)_3$. $LaCl_3$ was then reacted with $Na_3(PO_2NH)_3^{3-}$ changing the initial ratio n of $(PO_2NH)_3^{3-}$ to La^{3+} from 0.25 to 6. The mixture was then stirred for 24 hrs to reach an equilibrium state, and the solid separated from solution by filtration. The results of the analysis of the solution and solid showed that during the reaction of $Na_3(PO_2NH)_3$ with $LaCl_3$ in the 0.25-1 range of n continuous decrease of the final concentration of La_3^{3+} takes place, equivalent to the quantity of trimetaphosphimate added. The residual concentrations of $(PO_2NH)_3^{3-}$ are all in 1/2

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USSR

ROZANOV, I. A., et al., Doklady Akademii Nauk SSSR, Vol 201, No 4, Dec 71, pp 872-874

the range of $2 \cdot 10^{-4}$ g-ion/l -- corresponding to the solubility of the precipitate. In this range one solid phase is formed with $n = 1$, the composition of the product being $La(PO_2NH)_3 \cdot 5.5\ H_2O$. This product persists up to $n = 2$, after which the ratio begins to change, until at $n = 5$ it reaches the level of 2. The product isolated at $n = 5$ has the composition $Na_3La[(PO_2NH)_3]_2 \cdot 8\ H_2O$. The first product is crystalline, the octahydrate is amorphous. Both materials are colorless, insoluble in water, alcohol, acetone, and ether; they dissolve with decomposition in concentrated HCl.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR UDC: 621.396.2:551.510.52

BERNOSKUNI, Yu. V., VAYZBURG, G. M., GUSYATINSKIY, I. A., KOZLOV, V. V., NEMIROVSKIY, A. S., PLEKHANOV, V. V.

"Experimental Research on a New Method of Combatting Signal Fading on Long-Range Tropospheric Transmission Lines ('Accord')"

Tr. NII radio (Works of the Scientific Research Institute of Radio), 1972, No 1, pp 55-62 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8A342)

Translation: The paper presents the results of experimental studies of the "Accord" system on a long-range ultrashort-wave tropospheric transmission line. The gain over standard quadrupled reception is determined. Resumé.

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USSR UDC 621.396.621.59:621.391.812.7(088.8)

VAYSBURG, G. M., GUSYATINSKIY, I. A., KOZLOV, V. V., NEMIROVSKIY, A. S., PLEKHANOV, V. V., BERNOSKUNI, YU. V.

"Device for Signal Reception with Equivalent Frequency Spacing"

USSR Author's Certificate No 296221, filed 21 Jul 1969, published 8 Apr 1971 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D78P)

Translation: A device is introduced for signal reception with equidistant frequency spacing containing heterodynes and two frequency converters connected in series to it, the input signal to the first of which is fed directly and the input signal to the second of which is fed via a delay line. The device also includes a phase detector one of the inputs of which is connected to the output of the first converter via a band filter. For reception of N - 1 signals with equidistant frequency spacing by one device, for a decrease in distortions, a phase modulator the control input of which is connected to the output of the phase detector is included between the output of the mentioned heterodyne and the other input of the phase detector. The delay of the delay line is selected equal to the inverse of the frequency separation, and the pass band of the band filter is selected not exceeding twice the magnitude of the frequency separation.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

UDC: 621.317.757

BERSHADSKIY, Ye. Ya. and UL'YANOV, G. K.

"Spectral Analysis With an Ultrasonic Dispersion Waveguide"

Leningrad, Priborostroyeniye, No 2, 1972, pp 25-28

Abstract: The dispersion spectrum analyzer is defined as having a broad-band linear dispersion four-terminal network as its basic element, and is used for analyzing the spectrum of single pulses as well as samplings of random signals. This article discusses its principle of operation and block diagram, and derives the principal relationships for the instrument in which the four-terminal dispersion network is ultrasonic. The latter is in the form of an aluminum waveguide, 1 mm thick and 2000 mm long, twisted into a spiral. Experimental results for the instrument are given, and photographs of spectra oscillograms are provided. The authors are connected with the Leningrad Institute of Aviation Instrument Design.

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B. Mathematical Statistics

USSR

BERNSHTEYN, A. V., SIDOROV, A. A.

"Estimate of Set of Mean Normal Population"

Teoriya Veroyatnostey i Eye Primeneniya [Theory of Probabilities and its Application], 1972, Vol 17, No 4, pp 768-773 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V186, by A. Bernshteyn).

Translation: The following problem is studied. Suppose $\Xi = \{\xi_1, \ldots, \xi_n\}$ is a set of n independent complex random quantities, the real and imaginary portions of which are independent and normal with identical unknown dispersion. Let A be the set of mean values of random quantities from Ξ. Given are N independent observations of Ξ: $Z_1, \ldots, Z_N$. Each observation Z_i is a disordered set of N complex numbers, containing one realization of each random quantity from Ξ. Basic assumption: for two given numbers $Z_i' \in Z_i$ and $Z_j'' \in Z_j$, belonging to different observations ($i \neq j$), it is unknown whether they are realizations of the same random quantity $\zeta \in \Xi$ or not. The problem

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USSR

Bernshteyn, A. V., Sidorov, A. A., Teoriya Veroyatnostey i Eye Primeneniya, 1972, Vol 17, No 4, pp 768-773.

is to use observations $Z_1,\ldots, Z_N$ to estimate the set of means A.

The solution to the problem is based on the following: let f be a vector of symmetrical homogeneous polynomials with order of homogeneity from one to n inclusively such that none of them can be expressed in the form of a polynomial by means of the others (this vector performs mutually unambiguous continuous mapping of the set of disordered populations of n complex numbers in n-dimensional complex space C^n). We utilize $f(Z_1),\ldots, f(Z_N)$ to estimate vector f(A), and if $\tilde{f}(A) = F(f(Z_1),\ldots, f(Z_N))$ is an estimate of f(A), we select as the estimate of $\tilde{A} = \{\tilde{a}_1,\ldots, \tilde{a}_n\}$ of set A the solution of the system of equations

$$\tilde{f}(\tilde{A}) = F(f(Z_1),\ldots, f(Z_N)).$$

This system always has a solution which is unique, with an accuracy to permutation of the elements of set $\tilde{A}$; its solution is reduced to determination of the roots of an nth power polynomial.

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USSR

Bernshteyn, A. V., Sidorov, A. A., Teoriya Veroyatnostey i Eye Primeneniya, 1972, Vol 17, No 4, pp 768-773.

This article studies a class of unbiased, consistent estimates f(A) (where estimate A is also produced consistent in this sense); the properties of these estimates are studied and estimates are found which are optimal according to a certain criterion.

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USSR UDC 681.335.713

TRET'YAKOV, N. M., TRET'YAKOVA, N. M., BERNSHTEYN, A. Ye., Vorkuta Affiliate of the Leningrad Mining Institute imeni G. V. Plekhanov

"A Differentiating Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 16, Jun 71, Author's Certificate No 303632, Division G, filed 25 Mar 69, published 13 May 71, p 178

Translation: This Author's Certificate introduces a differentiating device for electric signals. The device contains a multiple-level quantizer connected to a circuit for isolating the sign of the derivative. As a distinguishing feature of the patent, the band of frequencies of the signals to be differentiated is extended into the very low-frequency region by adding an OR circuit with its inputs connected to the circuit for isolating the sign of the derivative, and its output connected to a frequency meter.

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USSR UDC: 621.398

KOROBKOV, L. A., BERSHTEYN, D. Ye.

"A Device for Pulse-Position Modulation"

USSR Author's Certificate, No 231625, filed 5 Aug 49, published 1 Apr 69 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 1, Jan 70, Abstract No 1A316 P)

Translation: A PPM device is proposed which can be used to produce relatively short pulses and hence fairly high quality indices for a modulator and multichannel system as a whole as well as providing autonomous setting and adjustment of the channel pulse phase. In the proposed device, the linear section of the modulation characteristic is extended by taking the frequency of the voltage to be modulated as a multiple of the prf of the pulses produced and using blanking of excess pulses. The patented device is made in the form of a pentode which operates in the limiting mode with a diode-damped tank as the plate load. The circuit differs from these presently known in its simplicity, the relatively low-power cadence frequency signal, and power supply and may be used in all fields of technology where various types of modulation are used (PPM, PDM, PAM, PCM, delta modulation,

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KOROBKOV, L. A., et al., USSR Author's Certificate No 231625, filed 5 Aug 49, published 1 Apr 69 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 1, Jan 70, Abstract No 1A316 P)

etc.). Modulator circuits are given, as well as block diagrams of the common channel commutator and the connection of the channel commutators into the multichannel system. Three illustrations. S. S.

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USSR UDC 669.71.018.9.4

TSABROV, N. D., VINOKUROV, N. D., MARCHENKO, A. M., PECHENEV, V. S., KOPYTOV, G. A., VOL'KHIN, G. D., BERNSHTEYN, G. G.

"Experiment in Operating a Vacuum Mixer"

Tekhnol. legkikh splavov. Nauchno-tekhn. byul VILSa (Light Alloy Technology. Scientific and Technical Bulletin of the VILS), 1970, No 5, pp 26-31 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G206)

Translation: The application of a vacuum mixer for evacuating liquid alloys based on aluminum is expedient and has a number of advantages over the methods used earlier: the gas saturation of the metal is reduced appreciably; the technological plasticity of the ingots is increased; an increase in the casting rate by 10-15% is possible; and the number of defects during ultrasonic control of the products is reduced sharply. The schematic of the mixer and its operation are described. There are 4 illustrations and 1 table.

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Higher Algebra & Geometry and Topology

USSR UDC: 519.46

BERNSHTEYN, I.N., Corresponding Member, Academy of Sciences, USSR, GEL'FAND, I.M., GEL'FAND, S.I., Moscow State University imeni M.V. Lomonosov

"Differential Operators on a Base Affine Space"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 6, 21 December 1970, pp 1255-1258

Abstract: A fundamental role in representation theory is played by the basic affine space A of group G -- a connected, semisimple, r-rank, algebraic Lie group above the algebraically closed zero-characteristic field K. A is an algebraic set. A study is made of a differential-operator space with regular coefficients on A. A regular differential operator is defined in a cited work. 2 bibliographic entries.

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USSR

BERNSHTEYN, I. N., GEL'FAND, I. M., and GEL'FAND, S. I., Moscow State University

"Schubert Cells and Cohomologies of a Flag Space"

Moscow, Funktsional'nyy Analiz i Yego Prilozheniya, Vol 7, vyp 1, Jan-Mar 73, pp 64-65

Abstract: Let G be a linear, semisimple algebraic group over C, which is assumed to be connected and simply connected. Let B be some Borel subgroup of group G, X=G/B the principal projective space of group G. There are two approaches to studying the homological properties of the space X. In the first approach the basis $\{s_\omega\}$ is introduced into the homology spaces $H_*(H,Z)$, in the second the cohomology ring $H^*(X,Q)$ is identified with the factor ring $\overline{P}=P/J$. The article establishes a connection between these two approaches, describes the action of the group W in $H_*(X,Z)$ in the basis $\{s_\omega\}$, and determines the geometrical meaning of the operations employed in terms of the correspondence ring of the space X.

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USSR

BERNSHTEYN, I. N., et al., Funktsional'nyy Analiz i Yego Prilozheniya, Vol 7, vyp 1, Jan-Mar 73, pp 64-65

The authors thank B. KOSTANT, who directed their attention to these questions and acquainted them with his findings.

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USSR

ADEL'SON-VEL'SKIY, G. M., BERNSHTEYN, I. N. and GERVER, M. L.

"Estimation of the Number of Actions for Partial Determination of Order in a Finite Set of Numbers"

Issled. po Diskretnoy Mat. [Studies in Discrete Mathematics -- Collection of Works], Moscow, Nauka Press, 1973, pp 184-188 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V341)

Translation: The following bottom estimate is produced for the minimum number of comparisons in the most unfavorable case necessary for separation of the k greatest elements of a linearly decreasing set of n elements (and placement of the elements in the order of increasing magnitude):

$$V_k(n) \geqslant n-k+\log_2 \frac{n!}{(n-k+1)!}.$$

Where $k \leq 2$, the estimate is precise.

Abstractor's note. The top estimate for $V_k(n)$, also precise where $k \leq 2$, was found earlier by the abstractor (RZHMar, 1967, 3V210).

S. Kislitsyn

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USSR UDC 513.83+517.4

BERNSHTEYN, I. N., GEL'FAND, I. M., and GEL'FAND, S. I.

"Differential Operators on a Cubic Cone"

Moscow, Uspekhi Matematicheskikh Nauk, Vol 27, No 1, Jan-Feb 72, pp 185-190

Abstract: The article considers in the space C^3 with coordinates x_1, x_2, x_3 the surface X given by the equation $x_1^3 + x_2^3 + x_3^3 = 0$. The following theorem is proved:

Let D(X) be a ring of regular differential operators on X; D_a, a ring of small increments at the point 0, of analytic differential operators on X. Then

1°. The rings D(X) and D_a are not Noetherian.

2°. For any natural k the rings D(X) and D_a are not generated by subspaces D_k (or, as the case may be, D_{ak}) of operators of order no higher

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USSR

BERNSHTEYN, I. N., et al., Uspekhi Matematicheskikh Nauk, Vol 27, No 1, Jan-Feb 72, pp 185-190

than k. In particular, the rings $D(X)$ and D_{Ω} do not have a finite number of generatrices.

This theorem answers questions raised in an earlier article by B. MALGRANGE, a translation of which appears in the same issue of the instant journal.

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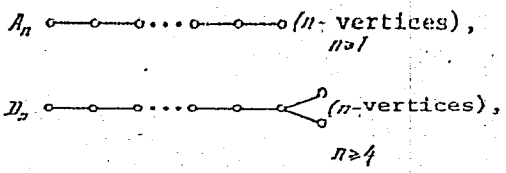
USSR

BERNSHTEYN, I. N., GEL'FAND, I. M., and PONOMAREV, V. A.

"Coxeter Functors and Gabriel's Theorem"

Moscow, Uspekhi Matematicheskikh Nauk, Vol 28, No 2, Mar-Apr 73, pp 19-33

Abstract: P. GABRIEL posed and solved the following problem: finding all oriented graphs (Γ, Λ) for which there exists only a finite number of indecomposable objects $(V, f) \in \mathcal{L}(\Gamma, \Lambda)$ which are nonisomorphic among themselves. He reached the conclusion that, in order that there be a finite number of indecomposable objects in the category $\mathcal{L}(\Gamma, \Lambda)$, it is necessary and sufficient that the graph Γ coincide with one of the following graphs:



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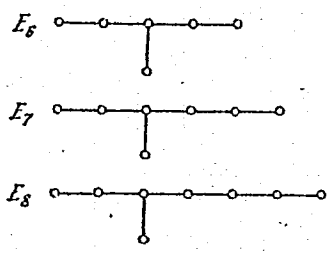
USSR

BERNSHTEYN, I. N., et al., Uspekhi Matematicheskikh Nauk, Vol 28, No 2, Mar-Apr 73, pp 19-33



(this fact does not depend on the orientation of Λ). What is surprising here is the fact that these graphs coincide exactly with DYNKIN's schemes for simple Lie groups. Also the indecomposable objects of the category $\mathcal{L}(\Gamma, \Lambda)$ naturally correspond to positive roots constructed according to DYNKIN's Γ scheme.

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USSR

BERNSHTEYN, I. N., et al., Uspekhi Matematicheskikh Nauk, Vol 28, No 2, Mar-Apr 73, pp 19-33

The present article "attempts to a certain extent to remove the 'mysticism' from this correspondence." While GABRIEL establishes a posteriori the relation with DYNKIN's schemes and roots, the authors of the present article give a proof of GABRIEL's theorem based on the use of the technique of roots and Weul groups. So-called Coxeter functors play an important roie in this proof. Some considerations regarding GABRIEL's problem which are similar to those used in the present article were recently stated by A. V. ROYTER.

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USSR

BERNSHTEYN, I. N., GEL'FAND, I. M., and GEL'FAND, S. I.

"Structure of Representations Generated by Vectors of Higher Weight"

Moscow, Funktsional'nyy Analiz i Yego Prilozheniya, Vol 5, Vyp 1, 1971, pp 1-9

Abstract: This article is concerned with the study of M_χ, which is an elementary unit of the semi-simple Lie algebra δ. The results permit understanding the majority of classical results from the theory of finite-dimensional representations of complex semi-simple Lie algebra, particularly the Kostant theory or the equivalent Weyl formula, the Borel-Weyl theory, etc.

The authors give the symbols and definitions used throughout the article and then proceed to define and prove the modulae M_χ by the use of theorems.

A detailed account is given of the processes involved in proving the necessity and sufficiency of condition (A), which may be either C or O.
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USSR

BERNSHTEYN, I. N., et al., Funktsional'nyy Analiz i Yego Prilozheniya, Vol 5, Vyp 1, 1971, pp 1-9

In the last section of the article the authors discuss the multiplicity of the weight of a finite-dimensional representation and offer proof thereof. In conclusion, an example is given of the submodulus M in M_X which does not have the form UM_{X_i}.

The article cites 12 literature references.

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III. Mathematical Cybernetics
A. Theory of Control Systems

USSR

MELIKHOV, A. N., BERSHTEYN, L. S., IVANOV, G. I.

"Analysis of Structural Plans of Asynchronous Automata"

Avtomatika i Vychisl. Tekhn. [Automation and Computer Technology], 1972, No 6, pp 14-18 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V439, by N. Katerinochkina).

Translation: An algorithm is presented for construction of a generalized quadratic automat matrix (GQAM) on the basis of the structural plan of the asynchronous automata. The GQAM is defined as a matrix in which the intersection of the ith row and the jth column carrier a Boolean function which takes on the value of 1 with those and only those sets of values of input and internal variables which shift the automaton from state q_i to state q_j.

An algorithm is presented for detection of contradictions and continuous transitions and dangerous runs in the memory of the asynchronous automaton by means of its GQAM.

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USSR UDC 539.374

BERNSHTEYN, M. L., LYUTTSAU, V. G., PLATOVA, S. N., LYUTTSAU, A. V., and RUDNITSKIY, YE. N., Moscow Institute of Steel and Alloys

"Mechanism of Hardening of Steel as a Result of High-Temperature Thermomechanical Treatment"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 2, 1973, pp 394-399

Abstract: The austenite substructure formed upon hot deformation under conditions of high-temperature thermomechanical treatment, defining the change in the composition of the martensite, is quite stable and is retained for a long period of time after completion of deformation and after secondary heat treatment. Achievement of the optimal combination of mechanical properties as a result of high-temperature Thermomechanical treatment requires that the substructure-formation process develop in such a way that most of the initial high-angle boundaries disappear, so that the entire volume of the metal is filled with subgrains which grow with time. There is a stage of the process (a duration of holding after deformation) such that as the new recrystallized structure is formed by coalescence of subgrains, the old high-angle boundaries disappear completely, while no new high-angle boundaries are yet formed.

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Thermomechanical Treatment

USSR

SOLOMADINA, YE. A., YANKOBSKIY, V. M., and BERNSHTEYN, M. L.

"Strain Hardening of Low-Carbon Steel with Thermomechanical Treatment"

Dnepropetrovsk, Metallurgicheskaya I Gornorudnaya Promyshlennost', No 4(82), Jul-Aug 73, pp 25-27

Abstract: The effect of combined thermomechanical treatment on the properties of brand-10 low-carbon martensitic steel containing 0.06, 0.10 and 0.14% C was investigated according to two schemes (high-temperature thermomechanical treatment + cold deformation and high-temperature thermomechanical treatment + warm deformation). The advantage of warm deformation are shown and the possibility is demonstrated of making high-strength casing pipe with a 50-75 kg/mm^2 yield point from such steel. One table, seven bibliographic references.

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USSR UDC 669.112227.342:669.017.3

BERNSHTEYN, M. L., and LAPTEV, D. V., Moscow Institute of Steel and Alloys

"Martensite Decomposition of High-Nickel Steels During Tempering"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973, pp 115-120

Abstract: Decomposition was studied in the process of tempering martensite steels 60N20 and 80N18 which had been subjected to standard hardening, high-temperature thermomechanical treatment (HTTT) and low-temperature thermomechanical treatment (LTTT), and the effect of repeated quenchings from different initial states on martensite decomposition was also investigated. Chemical composition of the investigated steels was:

	C	Ni	Mn	Si	S	P
60N20	0.61	20.44	0.12	0.20	0.010	0.004
80N18	0.80	18.46	0.11	0.25	0.010	0.001

Only processes of two-phase decomposition were detected during tempering at room temperature. For development of single-phase decomposition processes an increased temperature is necessary. HTTT slows and LTTT speeds up the pro-

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USSR

BERNSHTEYN, M. L., and LAPTEV, D. V., Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973, pp 115-120

cesses of martensite tempering. The inheritance of austenitic structural features by the martensite determines the occurrence of low-temperature tempering processes in the martensite. Four figures, one table, seven bibliographic references.

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Thermomechanical Treatment

USSR UDC 669.24:539.4

BERNSHTEYN, M. L., VLADIMIRSKAYA, T. K., LAPTEV, D. V., and CHUYAN, A.M., Moscow Institute of Steel and Alloys

"Stability of the Thermomechanical Strengthening Effect in Gonzo Nickel Steel"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 403-408

Abstract: The effect of repeated heating after prior thermomechanical treatment on the properties and structure of austenite and martensite was studied for 60N20 steel which had the following chemical composition (in %): 0.61 C, 20.44 Ni, 0.11 Mn, 0.18 Si, 0.010 S, and 0.001 P. Temperatures of the direct M_s and inverse A_s martensite transformation were -35 and +420°C, respectively. Results of mechanical tests and electron microscopy examinations showed that the effect of thermomechanical strengthening is preserved during the repeated heatings to 650 and 950°C, followed by quenching, because the accelerated heating promotes growth in the strength properties of the austenite and martensite as a result of phase cold hardening. The morphological features, forming in the austenite during repeated quenching, are the result of the reverse alpha-gamma transformation. In austenitic samples, subjected to high-temperature thermomechanical treatment with repeated quenching, preservation of the developed polygonal

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USSR

BERNSHTEYN, M. L., Fizika Metalloy i Metallovedeniye, Vol 35, No 2, Feb 73, pp 403-408

structure can be observed. Dislocation structures formed in the austenite are caused by the combined action of thermomechanical treatment and phase cold hardening during the gamma-alpha-gamma transformation. 5 figures, 6 bibliographic references.

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USSR

BERNSHTEYN, M. L.

"Hot Plastic Deformation and the Hardening Mechanism of Steel During Thermomechanical Treatment"

Moscow, Stal', No 2, Feb 72, pp 157-165.

Abstract: Steels and metals can be divided into two groups, depending on the degree of deformation hardening during hot working; there are correspondingly two types of deformation hardening curves in stress-strain coordinates, and the structural changes in metals of the two groups differ significantly. During the stable stage of hot deformation, dynamic equilibrium is established between processes of hardening resulting from deformation and processes of softening -- dynamic polygonization or dynamic recrystallization. Dynamic polygonization forms a very stable substructure, retained following repeated, lengthy heating to temperatures much higher than the recrystallization temperatures. This thermally stable structure has the highest combination of mechanical properties, often retained following repeated heat treatment. The substructure resulting from dynamic recrystallization is less stable, since all excess dislocations are destroyed during coalescence of subgrains and new dislocations are introduced to the dynamically recrystallized areas during deformation. A high combination of properties can also be produced in this case, but they are unstable due

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BERNSHTEYN, M. L., Stal', No 2, Feb 72, pp#157-165

to the lower stability of the fine structure created. Generalization of experimental data is used as a basis for formulation of the primary aspects of the mechanism of hardening of steel due to thermomechanical treatment. 17 figures; 36 bibliographic references.

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USSR

UDC: 669.15:621.785

BERNSHTEYN, M. L., BRUN, L. YA., ZAYMOVSKIY, V. A., SAVARI, P. and SAMEDOV, O. V., Moscow Institute of Steel and Alloys

"Inheriting the Thermomechanical Strengthening of 30Kh2GNT Steel"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 32, No 4, Oct 71, pp 813-818

Abstract: Described is a study of the mechanical properties of 30Kh2GNT steel quenched and tempered following preliminary high-temperature strain hardening with heating the deformed austenite as supercooled. It is shown that repeated quenching following high-temperature mechanical treatment facilitates the inheritance of high mechanical properties. The restoration of the higher properties is the more complete the longer the heating duration of the hot-deformed austenite in the bainite region. The maximum effect is observed when the high-temperature thermomechanical treatment is followed by isothermal decay. The effect of "inheritance" is also observed during repeated quenching following low-temperature thermomechanical treatment with isothermal decay of austenite. The nature of this phenomenon is discussed with regard to the metallographic analysis of the initial austenite grain

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BERSHTEYN, M. L., et al, Fizika metallov i metallovedeniye, Vol 32, No 4, Oct 71, pp 813-818

in which picric acid has failed to produce an unambiguous etching pattern and has most likely revealed, in addition to large-angle grain boundaries, the boundaries of a substructure. (6 illustrations, 5 bibliographic references)

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USSR UDC 669.15:539.4

BERNSHTEYN, M.L., LAPTEV, D.V. and BARAZ, A.R., Moscow Institute of Steels and Alloys

"Effect of Deformation Temperature on the Austenitic Properties of Nickel Steels"

Sverdlovsk, Fizika Metallov i Metallovadeniye, Vol 31, No 2, Feb 71, pp 414-415

Abstract: A study was made of the properties of austenite in nickel steels subjected to deformation at different temperatures. The nickel steels investigated were 40N23, 60N19, and 80N18. The degree of deformation for initial diameters of 3.5 and 2.9 mm was 40 and 20%, respectively. The following temperatures were selected for deformation: 900-950°C (high-temperature mechanical treatment) and 550°C (low-temperature mechanical treatment). Data obtained from the study showed that for HTMT the redistribution of carbon does not enter into later stages of segregation formation, not forming precipitations of the second phase, since the lattice parameter of austenite after quenching and HTMT is practically the same for all the studied alloys. In the case of LTMT the picture is different. The austenite lattice parameter is smaller after quenching and HTMT. This is a direct indication of the precipitation of carbon from the solid solution in the form of dispersed carbides. In the past the authors observed that after LTMT the carbides precipitated into dislocations.
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USSR

BERNSHTEYN, M.L., et al, Sverdlovsk, Fizika Metallov i Metallovadeniye, Vol 31 No 2, Feb 71, pp 414-415

Smaller values of the lattice parameter were observed for alloy 60N19 in comparison with alloy 40N23, which was apparently associated with the prevailing influence of nickel. 2 figures, 2 tables, 5 bibliographical references.

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USSR

UDC 621.785:620.17

BERNSHTEYN, M. L., and SMOLYAKOV, K. G., Moscow Institute of Steel and Alloys

"The Effect of High-Temperature Thermomechanical Treatment on the Mechanical Properties of Steels"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 7, 1971, pp 142-144

Abstract: The effects of high-temperature thermomechanical treatment (HTMT) and strain aging of martensite on the mechanical properties of carbon and silicon steels, types 20, 40, 60, 80, 20S2, 40S2, 60S2, and 80S2, were experimentally investigated. The investigation results and the increase of strength and plasticity properties as a result of HTMT are discussed by reference to diagrams showing the change of mechanical properties depending on the compression ratio by HTMT and tempering at 200°C. The possibility is demonstrated of realizing an effective strain hardening with conservation of a sufficient plasticity level as result of martensitic deformation after preliminary HTMT. Steels alloyed additionaly with silicon show a high complex of properties after HTMT and after martensitic deformation. Four illustrations, one bibliographic reference.

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USSR

UDC 621.789-977:669.14.018.29

BERNSHTEYN, M. L., PETSOV, G. G., and PISHCHULIN, N. I., Moscow Institute of Steel and Alloys

"Forming the Structure of Structural Steels by High-Temperature Thermomechanical Treatment"

Moscow, Metallovedeniye, No 6, 1971, pp 55-57

Abstract: The structure and mechanical properties of 40Kh, 40KhN, and 40KhNM structural steels were investigated after high-temperature thermomechanical treatment (HTMT) under conditions of pressing at various deformation rates. Specimens of pressed bars were subjected to tensile tests, and their microstructures, particularly the change of their graining character, were investigated at distances of 0.5, 1.5, 2.5, 4.5, and 7.5 mm from the surface. The optimum deformation degree under investigated HTMT conditions was found to be 70%. In this case, recrystallization processes had not yet been developed substantially. It is expedient to anneal structural steels with molybdenum and chromium by HTMT with pressing, which makes it possible to retain the structure developed by hot plastic deformation even in the event of great reduction. Five figures, six bibliographic references.

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Thermomechanical Treatment

USSR UDC 539.4.014.2:539.56

BERNSHTEYN, M. L., ZHUK, N. P., and PLAVICH, L. A. Moscow

"The Effect of High-Temperature Thermomechanical Treatment on Hydrogen Embrittlement of Steels"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 71, pp 54-58

Abstract: The tendency of steels D and 36G2S to hydrogen embrittlement after high-temperature thermomechanical treatment (HTTT) and control thermal treatment (by the same method, but without squeezing) was investigated. The HTTT of steels reduces their tendency to hydrogen embrittlement, if compared with the control thermal treatment. The main source of this reduction is the uniform distribution of dislocations in the volume of the metal (lower stress concentration), which, on the one hand, decreases the tendency of the steel to a brittle breakdown and, on the other hand, reduces the hydrogen absorption of steel. The possibility of a braking effect of the growth of martensitic plates, having a high dispersibility, is indicated. The latter factor decreases the distortion of near-boundary volumes which are the main locations of embrittlement. Four figures, one table, two bibliographic references.

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USSR UDC 669.24:539.37

BABICH, B. N., BERNSHTEYN, M. L., PORTNOY, K. I., PROKOSHKINA, V. G., and FEL'GINA, S. B., Moscow

"Effect of Cold Rolling and Subsequent Heating on the Structure and Properties of Dispersion-Hardened Nickel"

Moscow, Akademiya Nauk SSSR. Izvestiya. Metally, No 6, Nov-Dec 72, pp 144-148

Abstract: A study is made of the effect of cold rolling with a 60% reduction in area and subsequent heating on the structure, texture, and hardness of dispersion-hardened nickel containing 3 vol. % HfO_2 and obtained under different conditions of hot extrusion. The cold plastic deformation by means of rolling intensifies during reheating recrystallization of dispersion-hardened nickel as opposed to rotation forging. The obtained recrystallized structure with large elongated grains (2-3 mm) is characterized by the presence of annealing twins, developed substructure, and texture that retains mainly the orientations of the structure of deformation. In order to obtain a maximum degree of hardening of dispersion-hardened alloy, it is feasible to utilize a combined deformation during thermomechanical treatment which provides for combining of deformation rolling and rotation forging.

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USSR UDC 669.15 539.67

LAPTEV, D. V., BERNSHTEYN, M. L., BASINA, N. Z., and ZAYMOVSKIY, V. A., Moscow Institute of Steel and Alloys

"The Change of the Amplitude Dependence of Internal Friction of Nickel Steels After Thermomechanical Treatment"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 408-410

Abstract: A study was made of the amplitude dependence of internal friction of 40N25, 60N20, and 80N18 steels after thermomechanical treatment. Wire specimens, 250 mm long and 0.9 mm in diameter, were subjected to thermomechanical treatment and hardening. The specimens were drawn at 550 and 950°C. Martensite was produced by deep cooling in liquid nitrogen; its quantity comprised 86-90%. The amplitude dependence of internal friction (ADIF), investigated at room temperature, is characterized by the tangent of the angle of slope α of a straight line in ε-Q^{-1} coordinates. The austenite ADIF shows an increase of tgα with decreasing deformation temperature and increasing carbon content in the steel. The change of tgα of martensite of 60N20 steel and the change of the level of its internal friction, depending on the tempering temperature, are discussed by reference to diagrams. Four figures, one table, four bibliographic references.

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USSR

UDC: 669.15:621.785.79

BERNSHTEYN, M. L., ODESSKIY, P. D., KORNEYEVA, G. B., Moscow Institute of Steel and Alloys

"Thermomechanical Treatment of Low-Alloy Steels Under Deformation in the Intercritical Temperature Range"

Moscow, Izvestiya VUZov: Chernaya Metallurgiya, No 11, 1972, pp 145-149

Abstract: The authors examine the prospects of using quenching from the intercritical temperature range both after deformation and without deformation to harden low-carbon low-alloy structural steel. The study specimens are 30 mm sheets of rolled martensite steels grade St. 3sp, 15G2Fsp and 15G2Fps. Eight heat-treat cycles were studied. It is found that quenching from a point 50°C below the Ac_3 temperature followed by annealing at 650°C gives class S40 properties in rolled 15G2F steel (yield stress above 40 kg/mm^2, ultimate strength above 56 kg/mm^2) combined with high ductility (relative lateral contraction after fracture greater than 80%). Quenching preaustenized steels of this grade after deformation in the intercritical temperature range with subsequent annealing at 650°C gives class S50 strength properties in the rolled stock (yield stress above 50 kg/mm^2, ultimate strength above 60 kg/mm^2) com-

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USSR

BERNSHTEYN, M. L. et al., Izvestiya VUZov: Chernaya Metallurgiya, No 11, 1972, pp 145-149

bined with high ductility (relative lateral contraction after fracture more than 75%) and impact strength at subzero temperatures. Such treatment also considerably increases the cold-shortness of such steels.

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USSR UDC 669.15:621.785.79

BERNSHTEYN, M. L., ZHADAN, V. T., KHENSGER, K. E., Moscow Institute of Steel and Alloys

"Structure and Properties of 50KhGA Steel After High-Temperature Thermo-mechanical Treatment"

Moscow, Izvestiya VUZOv: Chernaya Metallurgiya, No 11, 1972, pp 150-153

Abstract: The authors investigate the kinetics of variation in the structure (austenite grain size and shape) and mechanical properties of 50KhGA spring steel during post-deformation aging before quenching. It is found that the structural changes and mechanical properties resulting from post-deformation delays of 0.2-10 s depend on the state of the initial austenite, the deformation temperature and the degree of reduction. It is shown that there is no direct correlation between the reduction in size of the austenite grain as a result of recrystallization and the increase in strength characteristics after ausforming of 50KhGA steel. The improvement in mechanical properties can be attributed to a well-developed substructure formed as a result of dynamic polygonization. Optimum ausforming schedules for 50KhGA steel are formulated and recommended on the basis of experimental data and analysis of the literature.

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USSR UDC 669.15'24-194:621.789

BERNSHTEYN, M. L., KAPUTKINA, L. M., LAPTEV, D. V. and NIKISHOV, N. A.,
Moscow Institute of Steel and Alloys

"Effect of Austenite Deformation on the Properties of Nickel Steels

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972,
pp 25-30

Abstract: Described is a study on the effect of deformation at 950°C (high-temperature strain hardening/HTSH/) and 550°C (low-temperature strain hardening/LTSH/) on the properties and martensitic structure of three steels with 0.4-0.8% C, 18-25% Ni (40N25, 60N20, 80N18) and martensitic points <0°C. The study included mechanical tests, x-ray diffraction analyses of both martensite and the volume of the low-carbon phase, as well as electron microscopic analyses of foils. The thermal stability of the state of strain hardening following reheating in a salt bath at 950°C was also studied. The mechanical properties of the steels following HTST were found to be higher than after conventional treatment. Upon deformation at various temperatures, the austenite appears to have a well developed dislocation substructure which is then inherited by the martensite and markedly affects the tempering

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USSR

BERNSHTEYN, M. L., et al, Metallovedeniye i termicheskaya obrabotka metallov, No 2, 1972, pp 25-30

processes. Repeated rapid hardening from 950°C retains the effect of thermal strain hardening. The dislocation structures in the austenite "inherit" some of the features of the initial dislocation structures. (6 illustrations, 1 table, 5 bibliographic references).

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USSR UDC: 669.14.018.58-15-13:620.17

BERNSHTEYN, M. L. and SMOLYAKOV, K. G., Moscow Institute of Steel and Alloys

"Effect of High-Temperature Strain Hardening and Deformation of Martensite on the Mechanical Properties of Carbon and Silicon Steels"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, No 1, 1972, pp 136-140

Abstract: Discussed are the effects of the substructure produced by high-temperature strain hardening (HTST) in 20, 20S2, 40, 40S2, 60, 60S2, 80 and 80S2 steels on their mechanical properties. It is shown that carbon-containing steels could be effectively strengthened while maintaining their plasticity by martensite deformation after preliminary HTSH. Steels additionally alloyed with silicon have demonstrated a rather high set of properties following this treatment and subsequent martensite deformation. Such results could not be achieved by martensite deformation after conventional heat treating. There is no correlation between the hardness and strength values of steel in the high-strength state. Strengthening of steel following strain hardening occurs, on the one hand, due to work hardening and, on the other, as a result of temper-induced unique redistribution of carbon following the higher dis-

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USSR

BERNSHTEYN, M. L., et al, Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, No 1, 1972, pp 136-140

location density. Steels that had been subjected to HTSH and carbon redistribution, demonstrated higher degrees of strengthening without marked drops in plasticity as compared to those with martensite deformation after conventional hardening. (2 tables, 1 bibliographic reference)

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USSR

UDC: 539.4.015

AZAREVICH, G. M., BERNSHTEYN, M. L., FRIDMAN, V. B., and SHUL'GIN, V. V.

"Thermomechanical Hardening of 4Kh10S2M Steel"

Moscow, Fizika i Khimiya Obrabotki Materialov, no. 6, Nov-Dec 70, pp 133-136

Abstract: A study has been made of the effect of various systems and parameters of thermomechanical treatment on the hardening of 4Kh10S2M steel designed for valves of tractor engines. It was found that upon high-temperature thermomechanical surface treatment (HTTST) of the working bevel of the valve, its hardness in the high-tempered state increases as compared to ordinary quenching and the same tempering. The obtained results make it possible to uniquely select optimum specifications for HTTST, including surface rolling using rolls 15 mm in diameter with a force of 250 - 400 kg per roll for 10-15 seconds, the degree of strain being about 40%. The recommended degree of strain with HTTST is consistent with the data in the literature. The suggested specifications insure maximum preservation of the hardness of 4Kh10S2M steel on tempering and high hardness immediately after treatment.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR UDC 62-977:669.15-194.3

CHERKASOV, A. A., KUZ'MINSKAYA, L. N., and BERNSHTEYN, M. L.

"Properties of 23Kh12NVMFA (EP65) Steel After High-Temperature Thermomechanical Working"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1970, pp 29-33

Abstract: A study was made of the influence of the parameters of high-temperature thermomechanical working on the properties of EP65 electric-slag steel. The chemical composition of the steel is: 0.24% C, 0.41% Mn, 0.28% Si, 0.013% P, 0.006% S, 13.1% Cr, 2.22% Ni, 0.60% Mo, 1.90% W, and 0.46% V. The influence of deformation temperature on properties was studied at 1050-1200°C with 70% deformation in three passes. The results show that the strength properties of EP 65 are higher by 25-30 kg/mm^2 than after ordinary heat treatment, while the plasticity is also higher, allowing tempering to be performed at a lower temperature. High-temperature thermomechanical treatment increases plasticity and viscosity, and also provides high crack propagation resistance with low anisotropy of mechanical properties. Increasing the deformation temperature over

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USSR

CHERKASOV, A. A., et al, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1970, pp 29-33

1100-1150°C decreases the strength of the steel, due to development of recrystallization. The hardened state produced is stable and is retained with tempering temperatures up to 550°C. Recrystallization at 850°C is slow, probably because of the high degree of alloying of the steel.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

UDC 539.4.015

BERNSHTEYN, M. L., and CHERNUKHA, L. G., Moscow

"Preliminary Thermomechanical Processing of Ailoyed Machine-Building Steel"

Moscow, Fizika i Khimiya Obrabotki Metallov, No 1, Jan-Feb 71, pp 61-65

Abstract: The hardening of machine-building steels (40KhINVA and 45KhNMFA) after preliminary thermomechanical processing is investigated in the case in which the cold plastic deformation preceeds the thermal treatment. Microstructural investigations of the steels revealed the absence of a change in the grain size after preliminary thermomechanical treatment. Structural analysis of X-ray data indicates a succession of defects generated by the deformation during thermal aftertreatment.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR UDC 62-977:669.15-194.2

BERNSHTEYN, M. L., ZAYMOVSKIY, V. A., and MATEVOS'YAN, A. P., Moscow Institute of Steels and Alloys

"Thermal Stability of Thermomechanical Hardening of Type 40 Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1970, pp 26-28

Abstract: A study was made of the effect of the unusually high thermal stability of the hardening produced by high-temperature heat and mechanical working performed under plant conditions on standard rolled products of type 40 steel (diameter 19 mm). Mechanical, metallographic, X-ray structural, and electron microscope studies were performed. It was established that a high combination of mechanical properties is retained after intermediate holding in the α and γ areas (for various lengths of time) and subsequent hardening plus tempering. It is concluded that the effect results from austenite phase separation (partial banite conversion) and the deformation involved in rolling. Elimination of the hardening effect requires quadruple annealing at 900°C for four hours. Intermediate tempering at 600°C or normalization at 840°C with holding times of up to ten hours do not decrease the mechanical properties.

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USSR

UDC 612.146.1

BERSHTEYN, S. A., Institute of Physiology imeni O. O. Bogomolets, Academy of Sciences Ukrainina SSR, Kiev

"The Effect of Respiration Stabilization on Hemodynamic Shifts During Acute Hypoxia"

Kiev, Fiziolohichnyy Zhurnal, Vol 19, No 1, 1973, pp 33-38

Abstract: Experiments were carried out on anesthesized rabbits whose respiration was controlled at 40-50 cycles per min with special equipment. The breathing air contained 7.5% oxygen. Control animals breathed with identical air but their respiration was not controlled. Hemodynamic indicators were measured when animals were breathing with normal air, 3 and 5 min. after the start of the experiment, and 10 min. after the termination of experiments. (Measurements are given in that order below, first for rabbits with stabilized respiration, followed by figures for the control animal in parenthesis). The systematic arterial blood pressure 74, 89, 91 (71, 79, 76) mm Hg; frequency of the heart beats 316, 294, 289 (304, 303, 306) per min.; heart index 0.820, 0.699, 0.645 (0.848, 0.925, 0.983) liters/m^2·min; systolic index 2.6, 2.4, 2.3 (2.7, 3.1, 3.3) ml/m^2; total peripheral resistance 38715, 50710, 54205 (36845, 38425, 35640) dyne·sec·cm^{-5}; performance index of the left ventricle 0.821, 0.842, 0.794 (0.852, 0.971, 1.012) kgm/m^2·min; contraction index of the left ventricle

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BERSHTEYN, S. A., Fiziolohichnyy Zhurnal, Vol 19, No 1, 1973, pp 33-38

0.0026, 0.0029, 0.0028 (0.0028, 0.0033, 0.0034) kgm/m^2, respectively. Thus, the pressor reaction in rabbits with stabilized respiration was more pronounced during the acute hypoxia, as compared with control animals. This was especially evident in the heart index, which was determined mainly by noticable bradycardia and increased resistance of the peripheral blood vessels. While the increase in the systematic arterial pressure in control animals was due primarily to the heart components of the hemodynamic reaction, the pressor reaction in rabbits with stabilized respiration was related to the blood vessel components. There are two possible explanations of the hemodynamic characteristics during acute hypoxia: (1) the respiratory reaction during hypoxia, which is accompanied by increase in frequency and the minute volume respiration, stimulates the mechanoreceptors of lungs and leads to the increased efferent activity of the vagus; (2) respiration with air low in oxygen by animals with controlled respiration decreases drastically the arterial blood saturation with oxygen because the respiratory adaptability reaction is eliminated.

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USSR

UDC 612.146.1

BERSHTEYN, S. A. and RAZILYUK, O. V., Institute of Physiology im. O. O. Bogomolets, Academy of Sciences, Ukrainian SSR, Kiev

"Changes in Hemodynamics and Efferent Sympathetic Impulses During Some Pressor Cardiovascular Reflexes in Acute Hypoxic Hypoxia"

Kiev, Fiziologichniy Zhurnal, No 6, 1972, pp 769-778

Abstract: In experiments on anesthetized cats, changes in the main parameters of hemodynamics and efferent sympathetic impulses were compared in the postganglionic fibers of the renal nerve at the height of the pressor reaction elicited by a decrease in perfusion pressure in the carotid sinuses and electrical stimulation of the A and C fibers of the tibial nerve under normal conditions and during acute hypoxic hypoxia. Some qualitative and quantitative differences were observed in the hemodynamic structure of the pressor cardiovascular reflexes and efferent impulses in the animals exposed to acute hypoxic hypoxia. The results show that the bulbar and spinal structures of the cardiovascular center are excited by acute hypoxia. The observed differences are believed to be the consequence of excitation of the cardiovascular center and integration of reflex sympathetic and local metabolic influences in the effector.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

UDC: 681.3.001:518.5

BERNSHTEYN, S. S.

"Method of Combining Graph Diagrams of Algorithms"

Tr. Leningr. Fil. TsNII Svyazi [Works of Leningrad affiliate of Central Scientific Research Institute for Communications] No 24, 1970, pp54-62 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika I Vychislitel'naya Teknika, No 3, 1971, Abstract No 3 B52 by V. D.)

Translation: A method is suggested for combining graph diagrams of algorithms (GDA), based on the separation of elementary graphs which are parts of a graph containing no repeating points and the utilization of sampling functions: that is, logic functions taking on certain values upon passage through any branch of a fixed GDA. An algorithm is suggested for separating elementary graphs from a fixed GDA, equivalent to the algorithm for search for graph roots. A method of realization of a system of GDA in the form of an automaton reflecting the sampling function is studied. If the GDA system is divided into f elementary graphs, the automaton will have $r =]\log_2 f[$ binary switching memory elements. Each sampling function is assigned a definite internal state of the automaton. An example of an automaton realizing a fixed sampling function is presented. Six figures: 3 biblio. refs.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

UDC 621.791.763.3:620.192.7

BERNSHTEYN, S. V., and GIMMERVERT, Zh. M., Central Scientific Research Institute of Construction Design

"The Breakdown Character of the Weld"

Moscow, Metallovedeniye, No 5, 1971, pp 52-54

Abstract: The breakdown character of welds produced by welding 40-mm-diameter rods made from 35GS steel (0.34% C, 1.02% Mn, and 0.69 % Si) with UONI 13/55 electrodes was investigated by testing notched weld fractures for impact bending by the electron fractography method. Test results show the character of notches and the effect of test temperature on the impact ductility and macro- and micro-fractographies. The breakdown comparison of weld metal and fusion zones indicates that in the fusion zone a brittle micro-mechanism is predominant not only at low but also at room temperatures. The fusion boundary is the most vulnerable place for brittle crack propagation. A different fracture character in the microstructure of specimens with notches in the fusion boundary and notches in the weld metal zone was established. Three figures, four bibliographic references.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

1/2 036 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ESTIMATING THE BRITTLENESS OF STEEL BY REFERENCE TO THE FORM OF THE FRACTURE -U-
AUTHOR-(05)-ARONE, R.G., BERNSHTEYN, S.V., SOKOLOVSKY, P.I., RAKHMANOV, A.S., SITNOVA, N.V.
COUNTRY OF INFO--USSR

B

SOURCE--METALLOVEDENIE I TERM. OBRABOT. METALLOV, 1970, (1), 70-72

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL BRITTLENESS, MATERIAL FRACTURE, BIBLIOGRAPHY, PLASTIC DEFORMATION, CARBON STEEL, ALLOY STEEL, MICROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0861 STEP NO--UR/0129/70/000/001/0070/0072

CIRC ACCESSION NO--AP0124524

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

2/2 036 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124524

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADVANTAGES AND DISADVANTAGES OF ESTIMATING THE BRITTLENESS OF C AND ALLOY STEELS BY ANALYSING THE FORM OF THE FRACTURE IN TENSIL TEST SAMPLES ARE DISCUSSED. ANY ESTIMATE OF THE ENERGY CAPACITY OF THE RUPTURE PROCESS BASED SOLELY ON THE EXTERNAL APPEARANCE OF THE FRACTURE IS VERY ROUGH, SINCE IT TAKES NO ACCOUNT OF MICROSCOPIC PLASTIC DEFORMATIONS.

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SECTION IV

Sci Selected Aerospace Medical Facilities
PCS-89
June 1971

(16)

Name: Protein Research Institute, Pushchino

Description:

(U) During this quarterly reporting period, two new articles were located from the Protein Research Institute at Pushchino. On the basis of one of the articles, which dealt with escherichia coli ribosomes, it was possible to associate one new person, N. I. Smirnov, with the institute[32]. The other article, also on escherichia coli, was issued jointly from the Institute of Genetics and Selection of Microorganisms, Moscow, and the Protein Research Institute at Pushchino[33]. Previous articles by V. I. Permogorov have been issued from the former institute. No previous facility association could be located for V. D. Vasil'yev, but it is likely that he represents the latter institute. This article probably represents some joint work between the two institutes.

(U) As a ready source of reference, given below is a complete listing of personalities identified with the Protein Research Institute to the present time:

AV - biochemistry

Beletsina, N. V.	Privalov, P. L.
Bershteyn, T. M.	Ptitsyn, O. B.
Chirgadze, Yu. M.	Rashevskaya, Ye. P.
Fedorov, B. A.	Serdyuk, I. N.
Finkel'shteyn, A. V.	Smirnov, N. I.
Glinskaya, O. V.	Spirin, A. S.
Lavrilova, L. P.	Tiktopulo, Ye. I.
~~[illegible]~~	Vasil'yev, V. D.
Mitin, Yu. V.	

BERSHTEYN, T. M.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

UDC 669.71.053.4.094

MAL'TS, N. S., BERNSHTEYN, V. A., MEDVEDEV, V. V., BAGAYEV, A. S.

"Thermotechnical Studies on an Experimental Device for High-Temperature Leaching of Bauxites"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research And Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 109-119 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G141)

Translation: Results are presented from studies of the kinetics of incrustation of the heat-exchange surface and the heat-exchange conditions during the process of heating of bauxite pulp in the experimental device for high-temperature leaching of bauxites. The nature of incrustation of the heat-exchange surface in a broad temperature range of heating of bauxite pulp and also the effect of individual factors on this process are determined. There are 4 illustrations and 1 table.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

UDC 612

BERNSHTEYN, V. A., Institute of Physical Culture, Chair of Physiology, Malakhobk District, Moscow Oblast

"Carbohydrate Metabolism and Its Regulation During Hypothermia"

Moscow, Uspekhi Fiziologicheskikh Nauk, Vol 4, No 4, 1973, pp 142-159

Abstract: The author presents a review of the literature and of his own work concerning the influence of hypothermia on the various components of carbohydrate metabolism. The contradictory findings of different experimenters as to whether hyper- of hypoglycemia is brought on by cooling are reviewed. Various explanations are suggested, including differing liver glycogen reserves and mobilization, whether or not hypothermia is achieved by means of narcosis and differences between initial cooling and stabilized hypothermia. The lowering of liver glycogen reserves, variation of insulin concentration, role of the thyroid, increased secretion of adrenal medullary substances (without narcosis only), importance of the vegetative nervous system and slowing of glucose utilization are discussed. The author points out that the brain, in contrast to the liver, heart and muscles, maintains a high glucose concentration during hypothermia. Depression of kidney readsorption

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

BERNSHTEYN, V. A., Uspekhi Fiziologicheskikh Nauk, Vol 4, No 4, 1973, pp 142-159

is also observed. In addition the author concludes that blood glucose does not play a significant role in the energetics of shivering due to cold.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

USSR

UDC 612.53+612.74

BERNSHTEYN, V. A., SINAYSKIY, M. M., GRUYEVA, L. G., LEVITINA, T. A., and LAZUTINA, T. P., Chair of Physiology, Extension of the Smolensk Institute of Physical Culture, Malakhovka, Moskovskaya Oblast

"Some Aspects of Thermoregulation During Muscle Work"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 5, 1973, pp 819-827

Abstract: The investigation was performed on 12 athletic students pedaling a bicycle ergometer at a work load of 15 kgm/min/kg body weight for 30 min. At this rate of work, heart rate increases to a maximum of 174 beats/min, pulmonary ventilation to 730 ml/kg/min, and oxygen consumption to 30 ml/kg/min. During the so-called controlled hyperthermia which develops under minimum to moderate thermoinsulation, deep body temperature (measured in the ear near the tympanic membrane) rises uniformly from a control of 37.0°C to 39.4°C. However, excessive thermoinsulation (wearing a thick jacket) causes an additional uncontrolled rise in deep body temperature to a peak of 40.0°C. Skin temperature on the forehead rapidly increases during the first 9 minutes from 35.5 to 39.4°C, to exceed deep body temperature by 1.2°C, but falls subsequently to 37.7°C at the 30th minute. Sweating on the forehead begins with the local rise in temperature and then becomes proportional to deep body temperature and

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BERNSHTEYN, V. A., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 5, 1973, pp 819-827

thermoinsulation (from 0.2 mg/cm^2/min in 3 minutes to 4.9 mg/cm^2/min in 30 min). Even though not all the sweat evaporates, it is concluded that in steady-state work done with light thermoinsulation at a normal room temperature, about 3/5 of the total heat loss is due to evaporation of sweat.

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"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--COLOR REACTIONS TO LEMORAN AND BAMETHAN SULFATE -U-

AUTHOR-(02)-LITVINENKO, A.V., BERNSHTEYN, V.N.

B

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(1), 53-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TARTARIC ACID, ALKALOID, MORPHINE, SULFATE, HYDROXYL RADICAL, COLORIMETRIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0053 STEP NO--UR/0450/70/004/001/0053/0054

CIRC ACCESSION NO--AP0132348

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9"

"APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9

2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0132348
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD FOR THE DETN. OF THE TWO TITLE COMPDS. IN SOLN. WAS AS FOLLOWS: TO A ML OF AN AQ. SOLN. CONTG. 2-3 MG LEMORAN (THE TARTRATE SALT OF (MINUS),3,HYDROXY,N,METHYLMORPHINAN) OR 10 MG BAMETHAN SULFATE (1,RHO,HYDROXYPHENYL,2,BUTYLAMINOETHANOL SULFATE) WAS ADDED A ML OF 0.15PERCENT ALC. SOLN. OF 1,NITROSO,2,NAPHTHOL, 1 DROP AQ. NAND SUB2 SOLN. AND A LO OF CONCD. HNO SUB 3. A COLOR CHANGE OCCURRED. LEMORAN GIVES LIGHT COLOR (LAMBDA SUBMAX. 500-15MMU) AND BAMETHAN SULFATE A DARK COLOR (LAMBDA SUBMAX. 480-5 MMU). TO THE LATTER SOLN. WAS ADDED 3 ML H SUB2 O AND 3 ML CHCL SUB3. ON SHAKING, THE CHCL SUB3 BECOMES RED. LEMORAN CAN BE DETECTED IN CONCNS. AS LOW AS 15 GAMMA AND BAMETHAN SULFATE IN CONCNS. 180 GAMMA. FACILITY: PYATIGORSK. FARM. INST., PYATIGORSK, USSR.

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APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330011-9"